

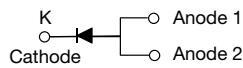
High Current Density Surface-Mount TMBS® (Trench MOS Barrier Schottky) Rectifier

Ultra Low $V_F = 0.60$ V at $I_F = 4$ A

eSMP® Series



SMPC (TO-277A)



LINKS TO ADDITIONAL RESOURCES


[3D Models](#)

FEATURES

- Very low profile - typical height of 1.1 mm
- Ideal for automated placement
- Trench MOS Schottky technology
- Low forward voltage drop, low power losses
- High efficiency operation
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



RoHS
COMPLIANT
HALOGEN
FREE

TYPICAL APPLICATIONS

For use in low voltage high frequency inverters, freewheeling, DC/DC converters and polarity protection applications.

MECHANICAL DATA

Case: SMPC (TO-277A)

Molding compound meets UL 94 V-0 flammability rating
Base P/N-M3 - halogen-free, RoHS compliant, and commercial grade

Terminals: matte tin plated leads, solderable per J-STD-002 and JESD 22-B102
M3 suffix meets JESD 201 class 1A whisker test

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	8.0 A
V_{RRM}	200 V
I_{FSM}	150 A
V_F at $I_F = 8.0$ A	0.68 V
T_J max.	150 °C
Package	SMPC (TO-277A)
Circuit configuration	Single

MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted)

PARAMETER	SYMBOL	V8P20	UNIT
Device marking code		V820	
Maximum repetitive peak reverse voltage	V_{RRM}	200	V
Maximum average forward rectified current (fig. 1)	I_F ⁽¹⁾	8.0	A
	I_F ⁽²⁾	2.2	
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	I_{FSM}	150	A
Voltage rate of change (rated V_R)	dV/dt	10 000	V/μs
Operating junction and storage temperature range	T_J, T_{STG}	-40 to +150	°C

Notes

(1) Mounted on 30 mm x 30 mm pad areas aluminum PCB
(2) Free air, mounted on recommended copper pad area

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)							
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT	
Instantaneous forward voltage	$I_F = 4 \text{ A}$	$T_A = 25^\circ\text{C}$	V_F ⁽¹⁾	0.80	-	V	
	$I_F = 8 \text{ A}$			0.95	1.40		
	$I_F = 4 \text{ A}$	$T_A = 125^\circ\text{C}$		0.60	-		
	$I_F = 8 \text{ A}$			0.68	0.76		
Reverse current	$V_R = 180 \text{ V}$	$T_A = 25^\circ\text{C}$	I_R ⁽²⁾	2.0	-	μA	
		$T_A = 125^\circ\text{C}$		2.1	-	mA	
	$V_R = 200 \text{ V}$	$T_A = 25^\circ\text{C}$		6.4	250	μA	
		$T_A = 125^\circ\text{C}$		3.4	20	mA	

Notes

(1) Pulse test: 300 μs pulse width, 1 % duty cycle

(2) Pulse test: Pulse width $\leq 40 \text{ ms}$

THERMAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)					
PARAMETER	SYMBOL	V8P20		UNIT	
Typical thermal resistance	$R_{\theta JA}$ ⁽¹⁾	80		$^\circ\text{C/W}$	
	$R_{\theta JM}$ ⁽²⁾	4			

Notes

(1) Free air, mounted on recommended copper pad area; thermal resistance $R_{\theta JA}$ - junction to ambient

(2) Mounted on 30 mm x 30 mm Al PCB; thermal resistance $R_{\theta JM}$ - junction to mount

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
V8P20-M3/86A	0.10	86A	1500	7" diameter plastic tape and reel
V8P20-M3/87A	0.10	87A	6500	13" diameter plastic tape and reel

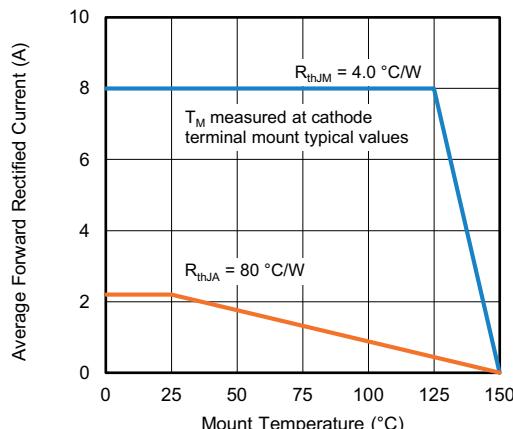
RATINGS AND CHARACTERISTICS CURVES ($T_A = 25^\circ\text{C}$ unless otherwise noted)


Fig. 1 - Maximum Forward Current Derating Curve

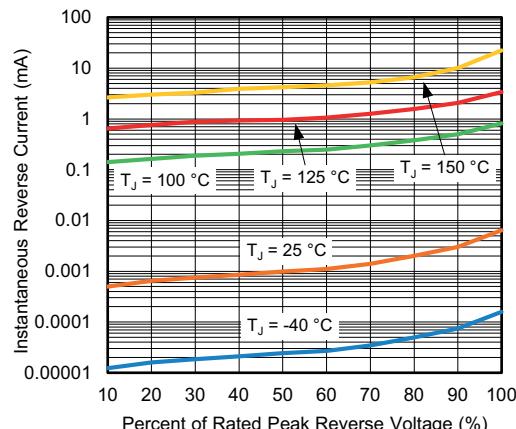


Fig. 4 - Typical Reverse Characteristics

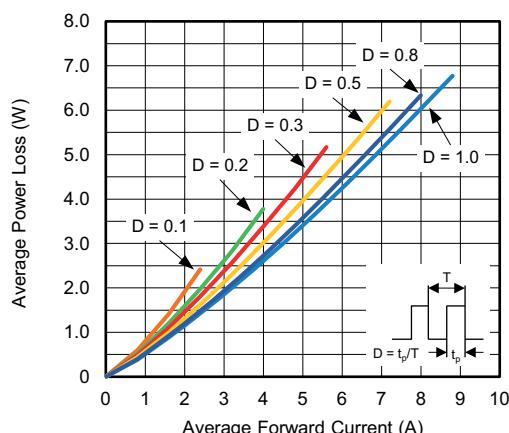


Fig. 2 - Forward Power Loss Characteristics

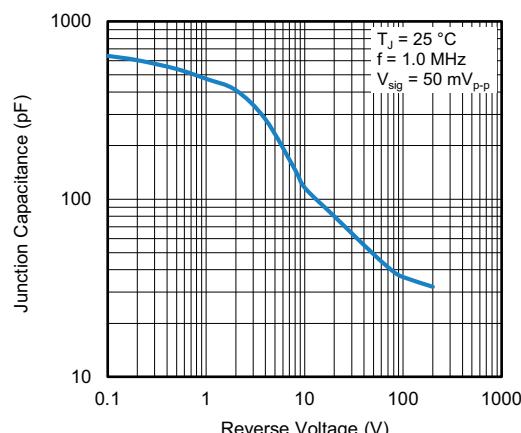


Fig. 5 - Typical Junction Capacitance

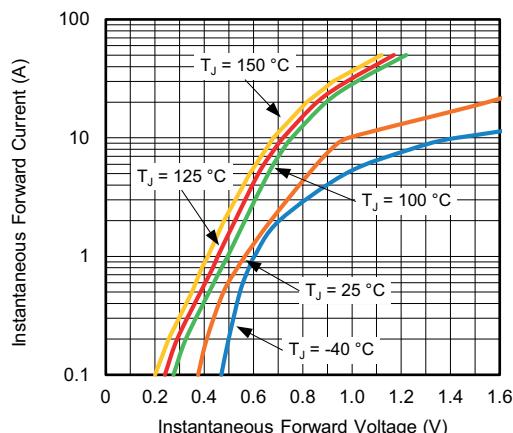


Fig. 3 - Typical Instantaneous Forward Characteristics

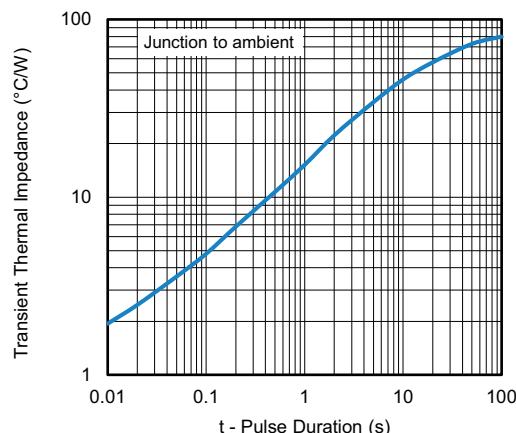
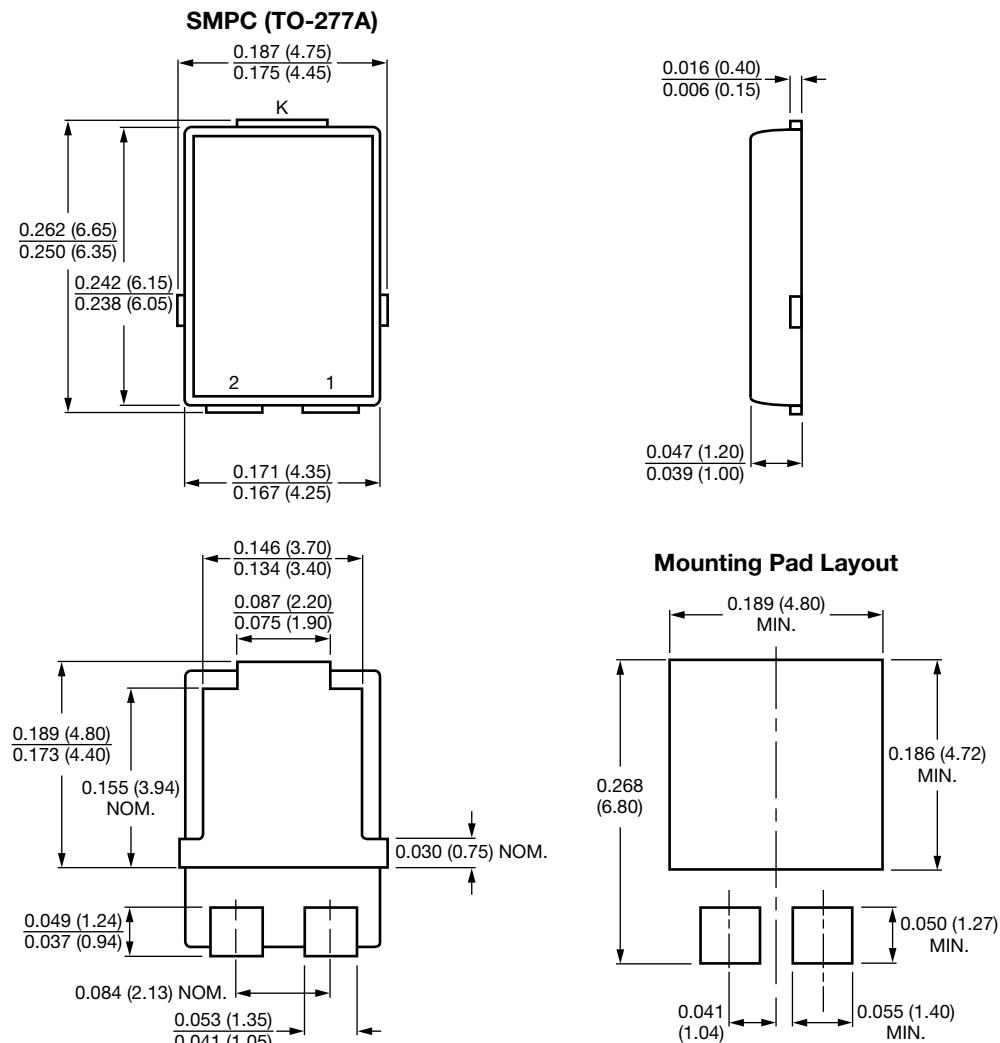


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)


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